EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 3-176

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-15-008	04/01/2015 To 03/31/2019 Base Option Period Number 3	Mega PR and PM 2.5

Contractor: JACOBS TECHNOLOGY INC.

Specify Section and paragraph of Contract SOW: 2.0 A, E, F, G, I

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 04/01/2018 To 03/31/2019

Comments:

Work Plan due 4/23/2018.

No work, including but not limited to preparation of the Work Plan, shall begin until 4/1/2018.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (Max 2): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 04/01/2015 To 03/31/2019 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Jenia Tufts (Signature) (Date)	Branch/Mail Code:	
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Project Officer Name: Robin S. Harris (Signature) (Date)	Branch/Mail Code:	
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	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Keith Pfeffer (Signature) 03/22/18 (Date)	Branch/Mail Code:	
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Performance Work Statement

WA Title: Mega PE and $PM_{2.5}$ Round Robin Program Sampling, Gravimetric Analysis, and Distribution

WA #: 3-176

WACOR: Jenia Tufts
EPA/OAQPS/AAMG
RTP Mail Code C304-06
919-541-0371

Contract #: EP-C-15-008

Alternate WACOR: Lewis Weinstock
EPA/OAQPS/AAMG
RTP Mail Code C304-06
919-541-3661

PERIOD OF PERFORMANCE

The period of performance detailed in the Performance Work Statement (PWS) shall be from the time of award through March 31, 2019.

SUMMARY OF OBJECTIVES

The objectives of this project are to collect, characterize gravimetrically, and distribute performance evaluation samples to CSN, IMPROVE and PM2.5 FRM Network laboratories and to document the results of these tasks.

This WA is a continuation of WA 2-176

BACKGROUND

The deployment of a PM monitoring network is a critical component in the national implementation of the PM NAAQS. The ambient data from this network drives an array of regulatory decisions, ranging from designating areas as attainment or nonattainment, to developing cost-effective control programs and tracking the progress of such programs. Data derived from the PM monitoring network include both aerosol mass measurements and chemical speciation data. Mass measurements are used principally for PM NAAQS comparison purposes in identifying areas that meet or do not meet PM NAAQS, and in supporting designation as attainment or non-attainment.

Chemical speciation data serve the implementation needs associated with developing emission mitigation approaches to reduce ambient aerosol levels and a variety of research and modeling needs. These measurements also provide support for regional haze assessments. The PM Chemical Speciation Network (CSN) consists of approximately 50 Trends sites for routine speciation monitoring and another 100 or so sites for state/local driven monitoring needs.

The purpose of the annual CSN/IMPROVE analytical Mega Performance Evaluation (PE) Program, and the $PM_{2.5}$ Round Robin (RR) Program, are to quantitatively

evaluate the total measurement system across the Network laboratories and identify any potential biases or problems in the data from these laboratories. Under this program, each participating Network laboratory is required to analyze a set of PE ambient $PM_{2.5}$ filter samples that are collected, prepared and characterized (gravimetric only) by OAQPS.

The analysis of PE samples both addresses interlaboratory comparability and evaluates specific laboratory performance at laboratories routinely analyzing gravimetric and chemical speciation samples for the CSN and IMPROVE networks. Mega PE Program speciation audit samples are collected and distributed one a year, and the $PM_{2.5}$ RR gravimetric audit samples are collected and distributed twice per year.

SCOPE

TECHNICAL APROACH/OBJECTIVES

Note: The Contractor shall not publish or present results from this work assignment without prior notification and review by EPA.

The Contractor shall attend regularly scheduled meetings with the EPA WACOR. Initially these meetings will be scheduled on a weekly basis, however the frequency will decrease to twice-monthly or less as determined by project needs.

The Contractor shall provide the following:

TASK 1 – Work Plan, Cost Estimate and Delivery Schedule

The Contractor shall submit a Work Plan, cost estimate and a delivery schedule in accordance with the terms of the contract.

TASK 2 – Annual Mega PE Sample Collection and Distribution

The contractor shall collect $PM_{2.5}$ filter samples using the sampling system located on the mezzanine on Shed Row at the EPA Facility in RTP, NC and distribute the samples to at least 9 laboratories. For each sampling event, outlined in Table 1, up to 32 channels shall be loaded with the appropriate filter type (47 mm MTL PTFE, pre-fired 47 mm Quartz fiber, 47 mm Nylon filters or 25 mm PTFE filters). OAQPS will provide the filters to be used in sampling and information on the number of labs receiving samples of each type.

Table 1. Example Sampling Matrix for Annual Mega PE Audit Series

Sampling Event	Filter Type	Filter Samples Collected	Labs Receiving Samples	# Samples per lab	# Samples Archived	Comment
1	47 mm Quartz	32	4	4	16	OC/EC
2	47 mm Teflon	32	5	4	12	Grav
3	25 mm Teflon	32	2	4	24	Grav
4	47 mm Nylon	32	6	4	8	IC
5	47 mm Teflon	32	2	4	24	IC
6	47 mm Teflon	32	5	4	12	XRF

Target PE sample concentrations shall be based upon current CSN and IMPROVE Network averages. Sampling durations will be based upon $PM_{2.5}$ data collected from continuous instrumentation located at the EPA AIRS site.

In addition to loaded filter samples, two filter blanks from the same lots used in each sampling event shall be included with all samples submitted to each laboratory for analysis. The Contractor shall be responsible for shipping the samples to participating laboratories. OAQPS will provide the Contractor with the list of laboratories receiving specific sample types and addresses.

For gravimetric Mass Analysis on 47 mm and 25 mm Teflon® filter samples: Samples shall be collected onto filters that have been tared by both the Contractor and the relevant Network laboratories, as described in the "Quick Implementation Scheme for Gravimetric PE Samples," which is included as Appendix A to this PWS. Conditioning and weighing methods shall follow both 40 CFR, Part 50, Appendix L, and "Quality Assurance Guidance Document 2.12: Monitoring PM2.5 in Ambient Air using Designated Reference or Class I Equivalent Methods." Weights shall be obtained using the ORD NERL robotic MTL weighing system located in E485A.

Equipment and supplies required to complete this Task shall be purchased as needed after consultation with the WACOR. Examples include, but are not limited to, PetriSlides, filter forceps, laboratory gloves, laboratory coats, Kimwipes, etc.

TASK 3 – Biannual PM2.5 Round Robin Sample Collection and Distribution

Under this Task, the contractor shall collect $PM_{2.5}$ filter samples onto 47 mm MTL PTFE filters using the same sampling system from Task 2 and distribute the samples to at least 13 laboratories. Sufficient filter samples shall be collected to provide at least 4 loaded filters to each laboratory. For each sampling event, all 32 channels shall be loaded with the appropriate filter.

OAQPS will provide the filters to be used in sampling. Filters not distributed to laboratories will be archived at the EPA RTP facility in the EPA OAQPS AAMG freezer located in E485.

All samples collected under this Task are for gravimetric analysis. Samples shall be collected onto filters that have been tared by both the Contractor and the participating laboratories, as described in the "Quick Implementation Scheme for Gravimetric PE Samples," which is included as Appendix A to this SOW. Conditioning and weighing methods shall follow both 40 CFR, Part 50, Appendix L, and "Quality Assurance Guidance Document 2.12: Monitoring PM2.5 in Ambient Air using Designated Reference or Class I Equivalent Methods." Weights will be obtained using the ORD NERL robotic MTL weighing system located in E485A.

Target PE sample concentrations shall be based upon current CSN and IMPROVE Network averages. Sampling durations shall be based upon PM2.5 data collected from continuous instrumentation located at the EPA AIRS site.

In addition to loaded filter samples, two filter blanks from the same lots used in each sampling event shall be included with all samples submitted to each laboratory for analysis. The Contractor shall be responsible for shipping the samples to participating laboratories. OAQPS will provide the Contractor with the list of laboratories receiving specific sample types and addresses.

Equipment and supplies required to complete this Task shall be purchased as needed after consultation with the WACOR. Examples include, but are not limited to, PetriSlides, filter forceps, laboratory gloves, laboratory coats, Kimwipes, etc.

TASK 4 –Standard Operating Procedures

Under this Task, the Contractor shall finalize the draft standard operating procedures (SOPs):

- *Standard Operating Procedures for Field Operations in the Mega Performance Evaluation*
- *Standard Operating Procedure for Gravimetric Analysis of Teflon® Filters Using an Automated Weighing System*

SOPs shall be prepared following the EPA *Guidance for Preparing Standard Operating Procedures (SOPs)* EPA QA/G-6, posted at https://www.epa.gov/sites/production/files/2015-06/documents/g6-final.pdf.

TASK 5 –Revise Sampling Plan; Submit Monthly Progress Reports

The Contractor shall revise the existing sampling plan with an updated schedule for the execution of Tasks 2 and 3.

The Contractor shall provide monthly progress reports outlining accomplishments, problems encountered and corrective actions.

TASK 6 –Draft Report Describing Sampling System and Results of Tests

The Contractor shall draft a report describing the sampling system design, operation and results of tests conducted under 2-176 and this WA, including gravimetric and speciation results. The report shall include a brief literature review of the state of science for producing repeatable ambient PM2.5 PE samples.

INSTRUMENTATION/EQUIPMENT EXPECTATIONS

Miscellaneous sampling supplies.

QUALITY ASSURANCE

The EPA Category I CSN Field quality assurance project plan (QAPP) "*Quality Assurance Project Plan: PM2.5 Chemical Speciation Sampling at Trends, NCore, Supplemental and Tribal Sites*" is the prime document governing CSN site location, sample collection, and QA/QC requirements and encompasses the activities of the EPA OAQPS, EPA Regions and state and local tribes (SLT's.). The CSN Field QAPP ensures the overall quality of data generated by the CSN monitoring network is appropriate for its intended use and covers the activities described in this PWS. The QAPP and supporting documents are posted on EPA's AMTIC website at https://www3.epa.gov/ttn/amtic/specguid.html. Sections 6 and 11 of the QAPP contain information on critical measurements for sampling, shipping requirements, and other information relevant to the Tasks described above.

DELIVERABLES

SCHEDULE of DELIVERABLES

Task	**Deliverables**	**Due Date**
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2	Annual Mega PE Sample Collection and Distribution	June 31, 2018
3	Biannual PM2.5 Round Robin Sample Collection and Distribution	July 31, 2018 (Round 2) January 31 2019 (Round 3) (Note that dates may be revised by the EPA WACOR based upon ambient conditions)
4	Finalized Standard Operating Procedures	July 31, 2018
5	Sampling Plan for Tasks 2 and 3 with updated Schedule	May 31, 2018
5	Monthly Progress Reports	Monthly
5	Draft report on PE sampling system	October 31, 2018

Appendix A

Quick Implementation Scheme for Gravimetric PE Samples (Mega PE and $PM_{2.5}$ RR)

Pre-Sampling Activities

- OAQPS
  - Identifies participating labs with coordination from Regions
  - Coordinates implementation scheme with participating labs
- Contractor
  - Obtains tare weights on blank, conditioned filters
    - Approximately 5 filters, including blanks
  - Sends tared blank filters to participating labs for lab tare weights within 3-5 days of obtaining weights
- Participating labs
  - Obtain tare weights of blank filters
  - Returns filters Contractor within 3-5 days of receipt
- Contractor
  - Reweighs blank filters to confirm previous weight and participating lab weight within 3-5 days of receipt
  - Randomly places filters in sampling array and collects PM2.5 under various sampling scenarios

Post-Sampling Activities

- Contractor
  - Equilibrates and obtains final weights on all filters within 3-5 days of sampling
  - Returns filters to participating laboratories for final weights within 3-5 days of obtaining weights
- Participating labs
  - Obtains final weights for filters within 5-8 days of sample receipt
  - Sends results to OAQPS
  - Returns filters to Contractor
- Contractor
  - Reweighs filters to confirm previous weight and participating lab weight within 3-5 days of receipt
  - Alerts OAQPS of any spurious data
  - Summarizes results and provide data summary and raw data to OAQPS
- OAQPS
  - Analyzes data and reports results to EPA Regions and participants
  - Trouble shoots any spurious data
  - Reports final evaluation to AMTIC